WHAT IS CLAIMED IS:

1. For use in a telecommunication network, a router comprising:

a switch fabric; and

N Layer 2 modules coupled by said switch fabric, each of said N Layer 2 modules capable of receiving data packets in Layer 2 frames and forwarding said received data packets using Layer 2 addresses associated with said Layer 2 frames, wherein a first one of said Layer 2 modules comprises a Layer 3 routing engine capable of forwarding a first received data packet through said switch fabric directly to a second one of said Layer 2 modules using a Layer 3 address associated with said first received data packet if said first Layer 2 module does not recognize a Layer 2 address associated with said first received data packet.

2. The router as set forth in Claim 1 wherein said Layer 3 routing engine comprises a forwarding table comprising a plurality of aggregated Layer 3 addresses.

3. The router as set forth in Claim 2 further comprising R route processing modules coupled to said switch fabric, wherein said first Layer 2 module transmits said first received data packet to a first one of said R route processing modules if said Layer 3 routing engine determines that said forwarding table does not contain said Layer 3 address associated with said first received data packet.

4. The router as set forth in Claim 3 wherein said switch fabric transmits said first received data packet to said first route processing module by selecting said first route processing module using a load distribution algorithm.

5. The router as set forth in Claim 4 wherein said load distribution algorithm is a round-robin algorithm.

6. The router as set forth in Claim 3 wherein said Layer 2 frames are Ethernet frames.

7. The router as set forth in Claim 3 wherein said Layer 3 data packets are Internet protocol (IP) data packets.

8. The router as set forth in Claim 2 wherein said switch fabric is a Layer 2 switch.

9. A telecommunication network comprising a plurality of routers, each of said routers comprising:

a switch fabric; and

N Layer 2 modules coupled by said switch fabric, each of said N Layer 2 modules capable of receiving data packets in Layer 2 frames and forwarding said received data packets using Layer 2 addresses associated with said Layer 2 frames, wherein a first one of said Layer 2 modules comprises a Layer 3 routing engine capable of forwarding a first received data packet through said switch fabric directly to a second one of said Layer 2 modules using a Layer 3 address associated with said first received data packet if said first Layer 2 module does not recognize a Layer 2 address associated with said first received data packet.

10. The telecommunication network as set forth in Claim 9 wherein said Layer 3 routing engine comprises a forwarding table comprising a plurality of aggregated Layer 3 addresses.

11. The telecommunication network as set forth in Claim 10 wherein said each router further comprises R route processing modules coupled to said switch fabric, wherein said first Layer 2 module transmits said first received data packet to a first one of said R route processing modules if said Layer 3 routing engine determines that said forwarding table does not contain said Layer 3 address associated with said first received data packet.

12. The telecommunication network as set forth in Claim 11 wherein said switch fabric transmits said first received data packet to said first route processing module by selecting said first route processing module using a load distribution algorithm.

13. The telecommunication network as set forth in Claim 12 wherein said load distribution algorithm is a round-robin algorithm.

14. The telecommunication network as set forth in Claim 11 wherein said Layer 2 frames are Ethernet frames.

15. The telecommunication network as set forth in Claim 11 wherein said Layer 3 data packets are Internet protocol (IP) data packets.

16. The telecommunication network as set forth in Claim 10 wherein said switch fabric is a Layer 2 switch.

17. For use in a router comprising: i) a switch fabric; and N Layer 2 modules coupled by the switch fabric, wherein each of the N Layer 2 modules receives data packets in Layer 2 frames and forwards the received data packets using Layer 2 addresses associated with the Layer 2 frames, a method of routing data packets in the router comprising the steps of:

receiving a first data packet in a first Layer 2 module;

determining if the first Layer 2 module recognizes a Layer 2 address associated with the first received data packet; and

if the first Layer 2 module does not recognize the Layer 2 address associated with the first received data packet, using a Layer 3 routing engine associated with the first Layer 2 module to forward the first received data packet through the switch fabric directly to a second one of the Layer 2 modules.

18. The method as set forth in Claim 17, wherein the Layer 3 routing engine uses a Layer 3 address associated with the first received data packet to forward the first received data packet.

19. The method as set forth in Claim 18 further comprising the step of transmitting the first received data packet from the first Layer 2 module to a first one of R route processing modules through the switch fabric if the Layer 3 routing engine determines that a forwarding table associated with the Layer 3 routing engine does not contain the Layer 3 address associated with the first received data packet.

20. The method as set forth in Claim 19 wherein the switch fabric transmits the first received data packet to the first route processing module by selecting the first route processing module using a load distribution algorithm.

21. The method as set forth in Claim 20 wherein the load distribution algorithm is a round-robin algorithm.